

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of)	
)	
Service Rules for the 698-746, 747-762)	
and 777-792 MHz Bands)	WT Docket No. 06-150
)	
Implementing a Nationwide, Broad-)	
band, Interoperable Public Safety)	PS Docket No. 06-229
Network in the 700 MHz Band)	

To: The Commission

COMMENTS IN THE ABOVE DOCKETS

Stagg Newman
Principal, Pisgah Comm Consulting
Former Chief Technologist, FCC
41 Pisgah View Ranch Road
Candler, NC 28715
(828) 665-3627

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SUMMARY

In order to increase substantively the likelihood of a successful “700 MHz D Block Public/Private Partnership Model” a proposed in the *Second Report and Order* in WT 06-150 and PS 06-299, the Commission must be much more specific about the service and service parameters that the D Block licenses must provide. This additional specificity will enable potential D block bidders to develop business plans with an acceptable degree of certainty while meeting the needs of public safety. This filing provides an example of a set of services and service parameters and the resulting network design.

This filing also advocates that the Commission adopt a service-based approach to reliability requirements.

Finally, this filing addresses a specific technical question about Out-of-Band-Emission requirements between the D Block and Public Safety broadband in the event that there is not a partnership network.

COMMENTS

In the *Second Further Notice of Proposed Rulemaking, FCC 08-128*¹, paragraph 55, the Commission invites comments on the technical specifications of the network under the Public Safety/D Block partnership model. This filing responds to this request.

1. The Commission must clearly define the services and service parameters that the D Block licensee must deliver to public safety and the performance requirements for those services. In the *Second Report and Order* in the above dockets, the FCC had only high level service concepts that created a high degree of uncertainty and risks in the business model.

Attachment A, “750 MHz RF Coverage Design for the State of North Carolina”, gives an example of a network design based on well-defined service parameters that can be used as model for the Commission to develop the service parameters needed. Note that Broadband IP wireless access is the fundamental underlying service. End-to-end higher layer services such as voice, data applications, and video can be provided over the broadband IP access with suitable quality of service. The decisions on (a) what type of subscriber equipment must be supported, (b) where, and (c) at what data rates can affect the number of cell sites needed by a factor of 2 to 10 and hence the economic viability of the D Block/Public Partnership model. For example, look at the difference between a service requirement that supports a vehicular-mounted high-gain device at the cell edge at 128 Kbps downlink speed versus a service requirement that supports a handheld indoor device at the cell edge with 512 Kbps downlink speed. From the first to the second of these two different service requirements, the

¹ *Second Further Notice of Proposed Rulemaking*, WT Docket No. 06-150, PS Docket No. 06-229, May 14, 2008.

allowable cell radius will decrease by $2/3$ s and the number of cells needed to cover a given geographic area will increase by a factor of 9 all other factors being the same.

The Commission also needs to work with public safety to determine what services the public safety community needs in what time frame. For example, a primary focus on voice in particular may not be needed over the D Block licensee network initially as public safety agencies today have dedicated networks of mission critical voice and frequently use commercial cellular offerings for non-mission critical voice communications. Within a few years given the continued rapid improvement in cellular technologies, the Broadband IP wireless access service will support robust VoIP over cellular networks as a standard application without incurring the costs of many new cell sites to achieve the necessary quality of service.

Thus the Commission, the public safety community, and the D Block licensee must wrestle with difficult choices between what is desirable and what is achievable in which time frame(s) from a cost standpoint.

The network design in Appendix A represents a pragmatic set of tradeoffs that resulted in a very feasible network build. Moreover this design used shared tower sites with the existing public safety data network where possible. Such an approach can lower the costs for the D block licensee and provide the public safety agencies with a credit that can lower their cost of services. The actual service parameters chosen are illustrative but not necessarily the definitive answer.

2. In paragraph 73 and following, the Commission asked about the 99.7% reliability requirement and more generally about requirements on robustness and hardening. The 99.7% requirement as noted by Cyren Call in its Petition for Partial Reconsideration and Clarification in these proceedings dated Sept. 24, 2007, is not well-defined and not consistent with any known industry standard. Rather than taking an equipment-based approach the Commission should take a service-based approach from the end-user standpoint by stating availability requirements and mean-time-to service restoral requirements. This allows the operator to provide high availability by either covering an area with signals from multiple cell sites and/or by hardening particular cell sites. The former frequently results in higher reliability. An example of such a requirement is the so-called 95/95 standard used for land mobile radio systems today, that is, in 95% of a geographic area, 95% of the time an agent can successfully make a call.
3. In paragraph 200 the Commission asks about Out of Band Emission Limits in the event that the D Block and Public Safety broadband are not partnered. The Commission should *not* use the narrowband OOBE standard of $76/65 + 10 \log P$ dB between the D block and the public safety broadband spectrum. Any likely PS broadband technology would *not* need the same level of OOBE protection as narrowband technology. Such a stringent requirement would greatly devalue the D block spectrum as it would require as much as 2 MHz of the D block next to the PS broadband spectrum to not be used. This would preclude using standard 5 MHz wide 3G or 4G technologies.

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